

**DATABASE MANIPULATIONS USING GROUP THEORY****ABSTRACT OF THE DISCLOSURE**

Data in a database describe an application domain such as a satisfiability problem. The data are represented in a manner that expresses the structure inherent in the data and one such representation uses group theory and represents the data as one or more “augmented clauses,” where each clause has a pair  $(c, G)$  including a database element  $c$  and a group  $G$  of group elements  $g$  acting on it. A query is encoded in a group theory representation and is executed on the group theory representation of the data to identify database elements and associated group elements satisfying the query. If desired, the satisfying database elements are converted from the group theory representation to the native representation of the data.

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18922/08585/SF/5110512.1